

FLOODING AND SEWAGE BACKUPS

Introduction and Background

In the event of a severe flood, sewage backup may occur, adding the possibility of exposure to disease causing agents. This document is intended to provide information about that risk.

In the event of a severe weather situation, and other emergency situations, residents are reminded to listen to local, county and state emergency management officials for instructions on how to stay safe.

It is important to determine whether floodwater is simply from rain, overflowing streams, or a high water-table or whether it is contaminated with wastewater or sewage. Sewage, if present, may contain large amounts of disease causing bacteria or viruses (also called *pathogens*). If sewage is present special precautions and disinfection may need to be taken.

Unless you have specific information to the contrary, you should consider water that "backs up" from a floor drain, sink, or toilet in your home contaminated with sewage. Outside your home, unless local officials tell you otherwise, water coming from street drains and manholes should also be considered sewage contaminated.

Whether or not someone becomes sick from exposure to floodwaters depends upon the presence of pathogens in the water and the amount and type of exposure an individual has had. For this reason, it is very important to properly clean or dispose of materials that have been contaminated as soon as it is safe to do so.

The following is general guidance for the public who may be at risk during flood events. This document includes suggested action steps before and after flood events to minimize the public health risk and property damage. Please be reminded of the importance of listening to local emergency management and public health officials before, during and after a flood event, so that you may receive instructions to keep you, your family and your property safe.

Prevention

If a home is located in an area that is prone to flooding (such as a floodplain) or where sewage backups have occurred, the homeowner can take the following precautions to prevent/reduce the effects of flooding.

Preventive actions include:

1. Waterproofing the building and sealing cracks in the foundation or walls
 2. Installation of a shut-off valve on the building sewer where it enters the building* (This protects your building from sewage back-ups)
 3. Raising or removing any sink, toilet, washing machine, etc in a basement that could be subject to backup
 4. Installation of a sump pump to pump out water that pools in the lowest parts of the structure*
 5. Directing gutter downspouts and drains away from the foundation and towards low points away from the building
 6. As feasible, keep furniture and valuable possessions above flood levels if floods have occurred before
 7. In minor flooding, tracing the water's point of entry and sealing cracks if possible
- * (Check with your municipal code official before installation)

Cleanup of Property

While homeowners may be anxious to return to their homes as quickly as possible to assess flood damage, *it is extremely important that they wait for clearance from local emergency management officials before attempting to return.*

The goal is to restore the property and contents to a dry state and recover any salvageable property as early as it is safely possible. The longer that water and/or sewage remains on property, the greater the potential for illness and irreparable damage to the home, its contents and its surroundings. Persons attempting cleanup after a flood should assume the presence of disease causing agents and take the following action steps:

- Always wear protective gloves, eyewear (to prevent exposure from splashing) and sturdy boots. Rain gear is also advisable.
- Upholstered furniture and mattresses should be discarded; other furniture should be cleaned or thrown away
- Areas affected by floodwaters should be cleaned with a detergent solution to remove sewage contamination, disinfected with a bleach and water solution (see instructions below) and allowed to air dry, in sunlight if possible.
- People with compromised immune systems or those who are very young, very old, suffering from chronic medical conditions or on medications should avoid assisting in the cleanup efforts if at all possible

Keep or Throw Away?

The next step is to decide what you will keep, and what must be thrown away. The following guidelines may assist you when deciding:

Usually Throw Away

- Foam rubber
- Large amounts of carpeting
- Books and other paper materials

Always Throw Away

- Food
- Makeup and other cosmetics
- Medicine/medical supplies
- Stuffed animals
- Mattresses and pillows
- Upholstered furniture
- Carpet padding
- Cardboard

Use Caution!

- Always assume things touched by sewage are contaminated
- Clean (soap and water) and disinfect (bleach and water solution) everything that is contaminated by sewage
- Use protective rubber gloves, goggles and boots
- Cover cuts or open sores; clean and apply dry bandages following cleanup
- Wash, disinfect or throw away any clothing and supplies immediately after use

Disinfection

The use of disinfectants will greatly reduce the level of disease causing agents. Typically, a solution of bleach and water is an adequate disinfectant. Disinfecting is distinctly different from cleaning something. Cleaning removes the dirt, while disinfecting greatly lessens the number of disease causing agents that were in the sewage or grew afterwards. Remember that bacteria, viruses and mold can also grow on concrete that has organic matter; therefore, concrete should be cleansed and disinfected thoroughly also.

Disinfectant Solution

A household bleach solution is an effective disinfectant and can be made by combining one quarter (1/4) cup of bleach to one gallon of water. Bleach should never be used directly without dilution since it can cause severe skin and respiratory problems in the concentrated form.

Preparing to Clean and Disinfect

- Remove any solid waste and place in plastic bags and dispose of properly
- Wash surfaces with warm, soapy water, then rinse thoroughly
- Apply disinfectant to all affected surfaces and allow to air dry, in sunlight if possible

Cleaning Yards and Surrounding Areas

Most bacteria, viruses and mold from sewage contamination affecting lawns, tarmac and paved areas will be inactivated by UV radiation from sunlight over the period of a few days. Disinfectant may be used on tarmac and paved surfaces such as driveways, patios and sidewalks. Usually, bacterial levels on grasses return to pre-flood levels within about 2 weeks to 3 weeks, but homeowners can apply liberal amounts of lime also. Remember to keep children and pets away from areas that have been treated with lime until the lime is no longer visible.

Other Preventive Measures

- Keep children and pets out of the floodwater
- Be sure that all gas and electric to the affected areas are turned off before you re-enter a flooded area
- If you have been personally exposed to floodwaters, bathe or shower thoroughly with soap and water and wash all contaminated clothing in hot water, detergent and bleach or discard
- Check for tetanus immunization status of those persons exposed to floodwaters. Having tetanus booster within the past 10 years is adequate. Parents should contact their pediatrician if vaccine status for children is unknown.
- Immune globulin (IG) injections for Hepatitis A is not being recommended in general. However, those individuals with suppressed immune systems due to steroid therapy, chemotherapy for cancer, or those with HIV/AIDS should consult with their primary care provider
- Persons experiencing fever, nausea, vomiting or diarrhea after exposure to possible contaminated floodwaters should contact a health care provider

Additional Resources

FEMA: <http://www.fema.gov/hazard/flood/index.shtm>

Red Cross: http://www.redcross.org/services/disaster/0,1082,0_570_00.html

U.S. Environmental Protection Agency: <http://www.epa.gov/mold/flood/index.html>

NJ Office of Emergency Management: <http://www.state.nj.us/njoem/>

This document was prepared by the Hudson Regional Health Commission to provide general guidance and is not intended to replace specific guidance from your local officials during an emergency.